IN THE CLAIMS:

Please enter the following claims: (Claims 1, 3-4, 6-20)

1 (currently amended): A micro-electromechanical system (MEMS) switch comprising:

a cavity (25);

at least one conductive path (20) integral to a first surface surrounding said cavity;

a flexible membrane (60) parallel to said first surface surrounding said cavity (25), said flexible membrane (60) having a plurality of conductive vias (69) and a plurality of actuating electrodes (70) attached thereto; and

a dielectric plunger (40) attached to said flexible membrane (60) in a direction away from said actuating electrodes (70), said dielectric plunger (40) having at least one conductive surface to make electrical contact with said at least one conductive path (20), wherein each of said actuating electrodes (70) is energized by a DC voltage of opposite polarity to the DC voltage of said adjoining actuating electrodes (70).

2 (canceled)

3 (original): The MEMS switch as recited in claim 1, wherein an electrostatic attraction between said actuating electrodes (70) results in a bending curvature of said flexible membrane (60) when said actuating electrodes (70) are energized.

4 (original): The MEMS switch as recited in claim 1, wherein said flexible membrane (60) is made of a dielectric material selected from the group consisting of SiO, SiN, carbon-containing materials that include polymers and amorphous hydrogenated carbon, and mixtures thereof.

5 (canceled)

6 (original): The MEMS switch as recited in claim 1, wherein the bending curvature of said flexible membrane urges said at least one conductive surface of said plunger (40) against said at least one conductive surface (20) integral to said first surface surrounding said cavity (25), closing the MEM switch.

7 (original): The MEMS switch as recited in claim 1, wherein the removal of said applied voltage returns said flexible membrane (60) to its original shape, pulling away said at least one conductive surface (30) of said plunger (40) from said at least one conductive surface integral to said first surface surrounding said cavity, opening the MEM switch.

8 (original): The MEMS switch as recited in claim 1, wherein the bending curvature of said flexible membrane (60) is a concave displacement.

9 (original): The MEMS switch as recited in claim 1, further comprising a second plurality of electrodes (74) placed on a bottom surface of the flexible membrane (60), wherein a reverse positive and negative voltage applied to said second plurality of electrodes (70) urges said plunger (40) away from said at least one conductive path (20), overcoming stiction.

10 (original): The MEMS switch as recited in claim 1, wherein a piezoelectric material integral to said flexible membrane (60) and positioned between said actuating electrodes (70) expands and contracts said flexible membrane (60) when subjected to a DC voltage.

11 (previously presented): The MEMS switch as recited in claim 10, wherein depending on said piezoelectric material and its crystalline orientation, applying a voltage

difference between said actuating electrodes (70) forces said flexible membrane (60) to adopt a concave or convex curvature.

12 (previously presented): The MEMS switch as recited in claim 10, wherein said piezoelectric material is selected from the group consisting of $BaTiO_3$, $Pb(ZrxTi1\text{-}x)O_3$ with dopants of La, Fe or Sr, and polyvinylidene fluoride (PVDF).

13 (original): The MEMS switch as recited in claim 1, wherein an RF gap area located within said cavity (25) is physically separated from gaps between said actuating electrodes.

14 (original): The MEMS switch as recited in claim 1, wherein the flexible membrane (60) is electrostatically displaced in two opposing directions, thereby aiding to activate and deactivate (original) The MEMS switch (15).

15 (original): A micro-electromechanical system (MEMS) switch comprising:

a) a substrate (18) comprising a conductive metal inlaid surface (20) onto which a cavity (250) is formed;

b) on said cavity (250), a first release layer (125) followed by a first conductive layer (130) and by a second conductive or dielectric layer (140) , said two conductive layers (130, 140) being patterned into the form of an inverted c T c (131, 141);

c) a planarized second release layer (72) followed by a third conductive layer (60);

d) on top of said third conductive layer (60), a dielectric layer and patterned vias holes (160) to expose a lower conductor;

e) a conductive surface filling said patterned via holes (160) providing a finite thickness above said filled via holes (160), said conductive surface patterned into the shape of actuating fingers (70), said combination of a) through e) forming a flexible membrane; and

f) via holes perforating said flexible membrane and simultaneously providing access slots (80) outside of said membrane, wherein air replaces said first and second release layers (125, 72).

16 (original): The MEMS switch as recited in claim 15, wherein said conductive layers include metal traces made of conductive metal elements selected from the group consisting of Al, Cu, Cr, Fe, Hf, Ni, Rh, Ru, Ti, Ta, W, Zr and alloys thereof.

17 (original): The MEMS switch as recited in claim 16, wherein said metal traces include elements selected from the group consisting of N, O, C, Si and H, as long as said metal traces are electrically conductive.

18 (original): The MEMS switch as recited in claim 15, wherein said flexible membrane and said dielectric layers are made of a material selected from the group consisting of AlN, AlO, HfO, SiN, SiO, SiCH, SiCOH, TaO, TiO, VO, WO, ZrO, and mixtures thereof.

19 (original): The MEMS switch as recited in claim 15, wherein said release layer is a sacrificial layer which is made of a material selected from the group consisting of borophosphosilicate glass (BPSG), Si, SiO, SiN, SiGe, a-C:H, polyimide, polyaralene

ethers, norbornenes, and their functionalized derivatives, including benzocyclobutane and photoresist.

20 (canceled)